

IN THE SPECIFICATION:

Please amend the specification as follows. A "Marked-Up Version of Amended Specification Paragraphs" is provided in APPENDIX A.

1. At page 1, insert the section title and paragraph below immediately before the section entitled "Title of Invention".

A1

Cross Reference To Related Applications

This application claims the benefit of International Application Published under the Patent Cooperation Treaty (PCT) having International Publication Number WO00/74587 filed June 2, 2000 entitled "METHOD AND APPARATUS FOR FILLING A DENTAL ROOT CANAL," of common assignee herewith.

2. At page 1, insert the section title below immediately before the paragraph "This invention relates to..."

A2

Field of the Invention

3. At page 2, insert the paragraph below immediately after the paragraph beginning "All the materials require as much as possible..."

NE. Therefore, a method and/or a apparatus for facilitating treatment of a dental root canal in a manner that overcomes limitations associated with conventional treatment technique is useful.

4. At page 2, insert the section title and drawing figure descriptions below immediately before the section entitled "Summary of the Invention".
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Brief Description of the Drawings

A³
Figure 1 is a schematic longitudinal cross-section through a tooth with one form of optical fibre and tip in place in a root canal.

Figure 2 is a enlarged sectional view of the optical fibre.

Figure 2a is a schematic view of a dental handpiece fitted with an optical fibre and tip and a tube for introducing photosensitiser into a root canal.

Figure 3 is a section through a single dose device for delivering a photosensitiser solution into the root canal.

Figure 4 is a perspective view of a laser housing connected to a dental handpiece.

Figure 5 is a view in the direction of the arrow "X" in Figure 4.

Figure 6 is a graph showing the effect of increasing the light transmission of carious dentine by demineralisation with EDTA.

5. At page 2, delete the section entitled "Summary of the Invention".

6. Insert the section title below in place of the section title deleted as requested at note 5 above.

Detailed Description of the Invention

- NE 7. At Page 16, delete from the sentence “The accompanying drawings illustrate...” through the sentence “Figure 6 is a graph...”.
- NE 8. At Page 16, delete the paragraph beginning “The tooth (1) is first ...”.
- NE 9. At Page 20, insert the paragraph below in place of the paragraph deleted as requested at note 8 above.

Referring to Figure 1, a tooth (1) is first drilled to access the entrance (2) to the infected root canal (3), and the canal opened up and debrided using conventional instruments. Loose debris is suctioned away and, optionally, the canal is flushed with a hypochlorite solution and then with water. A photosensitiser solution, e. g. Toluidine blue O, in dilute aqueous solution (concentration about 20pg/ml) is then introduced into the root canal using a fine-tipped syringe having an obliquely angled tip, or a disposable dispenser such as shown in Figures 2a or 3. Referring to Figure 3, the dispenser comprises a thin-walled cannula (10) having a reservoir (11) for photosensitiser solution attached to its proximal end. The connection between the reservoir and the cannula is sealed with a frangible membrane 12. At its distal

end, the cannula is perforated with small holes (13) which permit the escape of liquid from the cannula.

10. At page 20, delete the paragraph beginning “Experiments with slices...”.
11. At page 20, insert the paragraph below in place of the paragraph deleted as requested at note 10 above.

Experiments with slices of dentine cut from extracted human teeth have shown that it is desirable to pretreat a tooth cavity or recess with a demineralisation solution, e. g. of EDTA prior to the photosensitisation treatment. Even a short pre-treatment with EDTA, e. g. as a 0.1 molar aqueous solution, substantially increases the distance through which the laser light can pass. Even pre-treatment of the dentine with 0.1 molar EDTA or other demineralisation solution for as little as 15 seconds increased the depth of light transmission and dye penetration significantly. This is an important finding and enables the dentist to be confident that bacteria has been killed in crevices extending into the dentine of a treated tooth. The effect of demineralisation treatment on the light transmission and dye absorption is shown graphically in Figure 6. The effect of the demineralisation additive appears to be self-limiting in that the maximum demineralised area extends essentially only to the boundary of the dentine affected by the carious lesion.

12. At page 21, insert the paragraph below after the paragraph beginning “Alternately, the sterilized canal...”.

In the preceding detailed description, reference has been made to the accompanying drawings that form a part hereof, and in which are shown by way of illustration specific embodiments in which the invention may be practiced. These embodiments, and certain variants thereof, have been described in sufficient detail to enable those skilled in the art to practice the invention. It is to be understood that other suitable embodiments may be utilized and that logical, mechanical, chemical and electrical changes may be made without departing from the spirit or scope of the invention. To avoid unnecessary detail, the description omits certain information known to those skilled in the art. The preceding detailed description is, therefore, not intended to be limited to the specific forms set forth herein, but on the contrary, it is intended to cover such alternatives, modifications, and equivalents, as can be reasonably included within the spirit and scope of the appended claims.

13. At a new page after page 25, insert the section title and paragraph below.

Abstract of the Disclosure

A method of filling a dental root canal is disclosed herein. The method includes gaining access to the dental root canal and introducing a flowable photosensitizer into the dental root canal. After introducing the flowable photosensitizer into the dental root canal, an operation is performed for activating the flowable photosensitizer by exposing the walls of the dental root canal to light via an optical fibre within the dental root canal. Activating the flowable photosensitizer at least partially kills bacteria within the dental root canal and pulp chamber. After activating the flowable photosensitizer, the dental root canal is obturated.